

From the INTERNATIONAL BUREAU

## PCT

NOTIFICATION OF TRANSMITTAL  
OF COPIES OF TRANSLATION  
OF THE INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY  
(CHAPTER I OR CHAPTER II  
OF THE PATENT COOPERATION TREATY)  
(PCT Rules 44bis, 3(c) and 72.2)

To:

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Date of mailing (day/month/year)

03 August 2006 (03.08.2006)

Applicant's or agent's file reference

FP04DC12PC

IMPORTANT NOTIFICATION

International application No.

PCT/JP2004/015882

International filing date (day/month/year)

20 October 2004 (20.10.2004)

Applicant

DAICEL CHEMICAL INDUSTRIES, LTD. et al

## 1. Transmittal of the translation to the applicant.



The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter I).



The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter II).

## 2. Transmittal of the copy of the translation to the designated or elected Offices.

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following designated or elected Offices requiring such translation:

None

The following designated or elected Offices, having waived the requirement for such a transmittal at this time, will receive copies of that translation from the International Bureau only upon their request:

AE, AG, AL, AM, AP, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EA, EC, EE, EG, EP, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OA, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

## 3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability (Chapter II).

It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned within the applicable time limit (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.

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## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference FP04DC12PC	<b>FOR FURTHER ACTION</b> See Item 4 below	
International application No. PCT/JP2004/015882	International filing date (day/month/year) 20 October 2004 (20.10.2004)	Priority date (day/month/year) 05 November 2003 (05.11.2003)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant DAICEL CHEMICAL INDUSTRIES, LTD.		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).

2. This REPORT consists of a total of 7 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Box No. I    | Basis of the report   |
| <input type="checkbox"/> Box No. II              | Priority  |
| <input type="checkbox"/> Box No. III             | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |
| <input checked="" type="checkbox"/> Box No. IV   | Lack of unity of invention  |
| <input checked="" type="checkbox"/> Box No. V    | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input checked="" type="checkbox"/> Box No. VI   | Certain documents cited   |
| <input type="checkbox"/> Box No. VII             | Certain defects in the international application  |
| <input checked="" type="checkbox"/> Box No. VIII | Certain observations on the international application   |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis.2).

Date of issuance of this report  
27 July 2006 (27.07.2006)

Authorized officer

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Form PCT/IB/373 (January 2004)

# PATENT COOPERATION TREATY

TRANSLATION

From the  
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis 1)

To:

Date of mailing  
(day/month/year)

Applicant's or agent's file reference

FP04DC12PC

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/JP2004/015882

International filing date (day/month/year)

20.10.2004

Priority date (day/month/year)

05.11.2003

International Patent Classification (IPC) or both national classification and IPC

Applicant

DAICEL CHEMICAL INDUSTRIES, LTD.

## 1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☒ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

## 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220

## 3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/JP

Authorized officer

Page(s) No.

Telephone No.

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2004/015882

Box No. 1

Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐

This opinion has been established on the basis of a translation from the original language into the following language

\_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under

Rule 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐

a sequence listing

☐

table(s) related to the sequence listing

b. format of material

☐

in written format

☐

in computer readable form

c. time of filing/furnishing

☐

contained in the international application as filed.

☐

filed together with the international application in computer readable form.

☐

furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2004/015882

Box No. IV

Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees the applicant has:
- ☐ paid additional fees
- ☐ paid additional fees under protest
- ☒ not paid additional fees
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. ☐ This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is
- ☒ not complied with for the following reasons:

A compound having the partial structure <benzene ring-N=C> and capable of forming a polybenzoxazole insulating film is known to those skilled in the art (JP 2003-156844).

Thus, the common technical feature of the various compounds (options) described in Claim 1, "a compound having the partial structure <aromatic ring-N=C> and capable of forming a polybenzoxazole insulating film," cannot be called a special technical feature (a technical feature showing a contribution that the invention as a whole makes to prior art).

Consequently, there is no technical relationship among the various compounds (options) described in Claim 1 involving a "special technical feature," and the requirement of unity of invention is not met.

4. Consequently, this opinion has been established in respect of the following parts of the international application:

- ☐ all parts
- ☒ the parts relating to claims Nos. 1 (in part)

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2004/015382

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)

Claims \_\_\_\_\_ YES

Claims 1 \_\_\_\_\_ NO

Inventive step (IS)

Claims \_\_\_\_\_ YES

Claims 1 \_\_\_\_\_ NO

Industrial applicability (IA)

Claims 1 \_\_\_\_\_ YES

Claims \_\_\_\_\_ NO

2. Citations and explanations:

Document 1: JP 62-13406 A (EniRicerce SpA), 22 January 1987

Claim 1 does not appear to be novel or to involve an inventive step over document 1 cited in the ISR. Document 1 describes 3,3'-diaminobenzidine-N,N',N'',N'''-tetra(benzilidene).

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2004/015882

Box No. VI

Certain documents cited

1. Certain published documents (Rule 43bis.1 and 70.10)

Application No. Patent No.	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (valid claim) (day/month/year)
JP 2004-292348 A [X, E]	21.10.2004	26.03.2003	
JP 2004-307804 A [X, E]	04.11.2004	18.09.2003	26.03.2003

2. Non-written disclosures (Rule 43bis.1 and 70.9)

Kind of non-written disclosure	Date of non-written disclosure (day/month/year)	Date of written disclosure referring to non-written disclosure (day/month/year)
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Sub No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Of the "compounds of Formula (1) having 3 or more amino groups which may be protected by protective groups" which have a special technical feature, only a "compound wherein  $R^a$  and  $R^b$  are alkylidene groups without polar groups (isopropylidene, cyclohexylidene, etc.),  $R^c$  and  $R^d$  are alkylidene groups without polar groups or monosubstituted amino groups without polar groups, and  $R^a$ ,  $R^b$ ,  $R^c$  and  $R^d$  are bound to the 1, 2, 4 and 5 positions of the benzene ring or the 3, 3', 4 and 4' positions of the biphenyl ring" is described by specific manufacturing and use examples in the specifications, and other compounds (hereunder called "undisclosed compounds" are not described by specific manufacturing and use examples.

Moreover, these undisclosed compounds are not common technical knowledge to those skilled in the field of polybenzazole insulating films.

In addition, it does not seem possible that a compound wherein  $R^a$ ,  $R^b$ ,  $R^c$  and  $R^d$  are not in ortho positions relative to one another would be able to react with a carboxylic acid to form a polybenzazole insulating film, and the structure and properties of a polybenzazole insulating film obtained with the amino groups in different positions on the aromatic ring would of course be different.

Differences in the presence or absence, numbers, types, binding positions and the like of hetero atoms in the polar groups and aromatic ring would also change the solubility in the solvent.

Thus, it cannot be assumed that the undisclosed compounds have equivalent solvent solubility and polybenzazole insulating film formability to the "compound wherein  $R^a$  and  $R^b$  are alkylidene groups without polar groups (isopropylidene, cyclohexylidene, etc.),  $R^c$  and  $R^d$  are alkylidene groups without polar groups or monosubstituted amino groups without polar groups, and  $R^a$ ,  $R^b$ ,  $R^c$  and  $R^d$  are bound to the 1, 2, 4 and 5 positions of the benzene ring or the 3, 3', 4 and 4' positions of the biphenyl ring".

Consequently, the undisclosed compounds of the "compounds of Formula (1) having 3 or more amino groups which may be protected by protective groups" are not adequately supported by the specifications.

Since undisclosed compounds of the "compounds of Formula (1) having 3 or more amino groups which may be protected by protective groups" are inadequately supported by the specifications, no meaningful opinion can be given regarding novelty, inventive step and industrial applicability.

As a result, this opinion is given only with respect to the "compound wherein  $R^a$  and  $R^b$  are alkylidene groups without polar groups (isopropylidene, cyclohexylidene, etc.),  $R^c$  and  $R^d$  are alkylidene groups without polar groups or monosubstituted amino groups without polar groups, and  $R^a$ ,  $R^b$ ,  $R^c$  and  $R^d$  are bound to the 1, 2, 4 and 5 positions of the benzene ring or the 3, 3', 4 and 4' positions of the biphenyl ring".